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(54) ENDOSCOPE CLEANING/DISINFECTING APPARATUS

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(58) Field of Classification Search

CPC A61B 1/123; A61B 90/70; A61B 2090/701 See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

2009/0065034 A1* 3/2009 Suzuki A61B 1/123 134/56 R 2012/0015671 A1* 1/2012 Lada G06F 1/1616 455/456.1

FOREIGN PATENT DOCUMENTS

CN 101166457 B 4/2010 CN 102473020 A 5/2012 (Continued)

OTHER PUBLICATIONS

Machine Translation of JP2013-106790A, dated Jun. 6, 2013.* (Continued)

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(57) ABSTRACT

An endoscope cleaning/disinfecting apparatus includes: a cleaning/disinfecting tank; a cover portion; a facing portion; an approach portion; a central portion; an acceleration sensor detecting an acceleration change pattern at time of the cover portion moving from an open position to a closed position; an informing section; and a control section, when the acceleration change pattern detected by the acceleration sensor is different from a set pattern at the time of the cover portion moving from the open position to the closed position, judging that the approach portion comes into contact with the cleaning/disinfecting target and performing warning control of the informing section. A shortest distance between the approach portion and the cleaning/disinfecting tank at time of the approach portion being fitted into a hollow portion at the closed position is less than 3.2 mm.

8 Claims, 9 Drawing Sheets

